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SICKNESS FREQUENCY AMONG INDUSTRIAL EMPLOYEES.

MORBIDITY AMONG A GROUP OF WAGE EARNERS DURING THE FIRST NINE MONTHS OF 1920.[1]

In an earlier publication, statistics of disease incidence among a group of wage earners during the first half of 1920 were presented.[2]

The tabulations presented below include the three additional months of July, August, and September, 1920. The figures have been supplied by sick-benefit associations of the employees of certain industrial establishments cooperating with the Public Health Service by reporting currently the cases of sickness and nonindustrial accidents for which sick benefits are paid.

Unfortunately, figures for the entire year are not available at this time. Accurate sickness rates are dependent upon the inclusion of *all* cases lasting longer than the waiting period specified. On account of the failure of some employees to put in their claims for benefits promptly, and on account of the unsettled status of certain other cases, computation of the rates has been considerably delayed. It may be several weeks before the publication of accurate annual morbidity rates for 1920 will be practicable.

As before, the tabulations herewith presented include those cases which caused disability for *one week or longer*, and hence only the more serious cases are considered. It is hoped that more benefit associations having waiting periods of one, two, three, or four days will soon cooperate, so that cases of shorter duration may be studied as well as disabilities lasting one week or longer.

Seasonal Variation of the Principal Disease Groups.

In Table I a very considerable seasonal variation in disease occurrence is shown, the frequency rate in February being nearly six times the rate for September. Such an extreme variation is unusual, perhaps, since the influenza epidemic of January, February, and March, 1920, occurred just at the time that sickness ordinarily is heavy. When influenza and grippe were eliminated from the statistics, the rates were found to be about twice as great in winter as in summer.

The absence of any indication of increased incidence of digestive disorders in hot weather is probably due in part to the fact that

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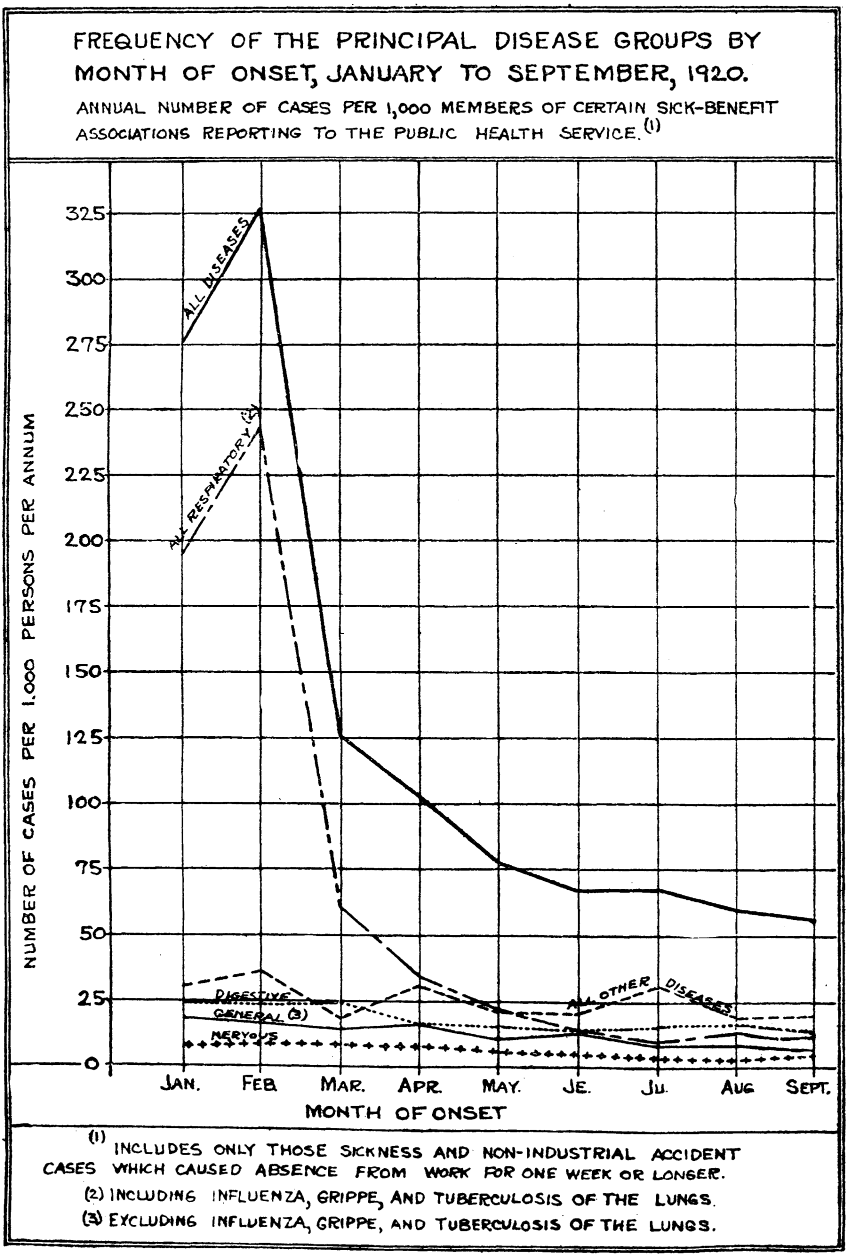
[1] From the Statistical Office, United States Public Health Service.

[2] "Sickness Frequency Among Industrial Employees," Reprint No. 624 from the Public Health Reports, Dec. 3, 1920, pp. 2897-2907.



FREQUENCY OF THE PRINCIPAL DISEASE GROUPS BY MONTH OF ONSET, JANUARY TO SEPTEMBER, 1920.

ANNUAL NUMBER OF CASES PER 1,000 MEMBERS OF CERTAIN SICK-BENEFIT ASSOCIATIONS REPORTING TO THE PUBLIC HEALTH SERVICE.(1)

(1) INCLUDES ONLY THOSE SICKNESS AND NON-INDUSTRIAL ACCIDENT CASES WHICH CAUSED ABSENCE FROM WORK FOR ONE WEEK OR LONGER.

(2) INCLUDING INFLUENZA, GRIPPE, AND TUBERCULOSIS OF THE LUNGS.

(3) EXCLUDING INFLUENZA, GRIPPE, AND TUBERCULOSIS OF THE LUNGS.

FIG. 1.

such illnesses ordinarily do not incapacitate for as long as seven consecutive days. If an increase in the frequency of this group of diseases is to be shown for the hot-weather months, the sickness rates, apparently, must include the cases of shorter duration. As mentioned in the earlier article, the relatively high rate for the respiratory diseases in the first three months of the year is accounted for chiefly by diseases of the pharynx, of which tonsillitis is the most important. Disability due to tonsillitis in the first three months of 1920 was found to be astonishingly great.

When it is considered that cases incapacitating for less than one week are not included, the frequency rates seem surprisingly high. Even in September, the month of lowest incidence in the period under review, the annual case rate was 56 per 1,000. This is true in spite of the fact that the members of a large proportion of the associations are a selected group.[3]

TABLE I.—*Frequency of the principal disease groups, by month of onset, in the first nine months of 1920, among a group of wage earners.*[1]

Month of onset.	Number of associations reporting.	Membership.	Number of cases per 1,000 persons per year.					
			All diseases and conditions.[2]	All respiratory diseases.[3]	Diseases of the digestive system.	General diseases.[4]	Diseases of the nervous system.	All other diseases.
January	8	14,208	275.0	195.3	24.1	18.3	7.5	29.8
February	13	22,249	326.7	243.3	22.7	16.4	8.5	35.8
March	15	23,527	126.0	61.2	24.1	14.1	8.0	18.6
April	17	25,832	103.9	33.5	15.7	16.0	8.0	30.7
May	22	54,044	76.7	22.3	15.3	11.3	5.9	21.9
June	25	58,036	67.3	13.9	14.1	13.4	5.0	20.9
July	26	58,385	67.1	10.3	15.0	7.5	3.8	30.5
August	25	58,969	60.1	12.8	15.8	8.8	4.0	18.7
September	23	60,264	56.2	11.9	13.8	6.9	4.3	19.3

[1] Annual number of cases per 1,000 members of certain sick-benefit associations reporting to the Public Health Service. Only cases lasting seven days or longer are included.

[2] Except the venereal diseases.

[3] Including influenza, grippe, and tuberculosis of the lungs.

[4] Excluding influenza, grippe, and tuberculosis of the lungs.

Frequency of Specific Diseases.

In lieu of a more satisfactory basis for classifying the diseases, and in accordance with the recommendations of the American Public Health Association's committee, the groupings appearing in the International List of the Causes of Death have been used in Table II, which presents the frequency rates of the more prevalent diseases according to the month in which disability began. The correct diagnosis probably is not always reported; but since practically all of the reporting associations require a physician's certificate naming the ailment causing disability, a fairly accurate idea is afforded of the nature of the illnesses occurring among the working people whose disabilities lasting a week or longer have been recorded.

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[3] Twelve of the 27 reporting associations shown in Table III specify definite age limits for eligibility to membership, and certain other restrictions.

As a brief comment on the incidence of a few of the specific diseases listed, the following is offered:

The rate from rheumatism was relatively high during the first half of the year, but it dropped to a decidedly lower level in July, at which point it practically remained for the two ensuing months.

It is interesting to note that occupational poisonings are almost entirely absent in this list as a cause of disability.

It will be noticed that bronchitis and pneumonia each have relatively high incidence in the group designated as "respiratory" in the International classification.

TABLE II.—*Number of sickness and nonindustrial accident cases causing absence from work for one week or longer per 1,000 persons per year among the membership of certain sick-benefit associations reporting to the Public Health Service: By disease causing disability according to month of onset, January to September, 1920.*

Disease or condition causing disability (with corresponding title numbers in parenthesis from the International List of the Causes of Death).	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
All diseases and conditions [1]	**275.0**	**326.7**	**126.0**	**103.9**	**76.7**	**67.3**	**67.1**	**60.1**	**56.2**
General diseases (1-59)	**163.7**	**218.9**	**54.2**	**30.1**	**16.8**	**18.0**	**9.7**	**11.4**	**10.7**
Typhoid fever (1)	1.7	......	.5	.5	.4	......	.4	.6	......
Influenza and grippe (10)	142.9	201.4	37.1	13.2	4.6	2.3	.8	1.2	2.0
Tuberculosis of the lungs (28)	2.5	1.1	3.0	.9	.9	2.3	1.4	1.4	1.8
Cancer (all forms) (39-46)	......	1.1	.5	.9	.7	......	.6	.8	.6
Rheumatism (47, 48)	6.6	6.8	5.5	8.0	5.0	6.7	3.0	3.4	3.6
Occupational poisonings (57, 58)	......	......	......	......	......	.2	......	.2	......
Others (2-9, 11-27, 29-38, 49-56, 59)	10.0	8.5	7.5	6.6	5.2	6.5	3.4	3.8	2.6
Diseases of the nervous system (60-76) [2]	**7.5**	**8.5**	**8.0**	**8.0**	**5.9**	**5.0**	**3.8**	**4.0**	**4.3**
Insanity (67, 68)	.8	1.1	1.5	.5	.2	.2	......	.6	.4
Neuralgia and neuritis (73)	4.2	2.8	2.0	.5	1.7	.8	1.4	1.2	.6
Others (60-66, 69, 70, 72, 74)	2.5	2.3	3.5	4.7	1.7	2.5	1.8	1.6	2.2
Diseases of the eyes (75)	......	.6	......	1.9	1.5	1.1	.4	.6	1.0
Diseases of the ears (76)	......	1.7	1.0	.5	.7	.4	.2	......	......
Diseases of the circulatory system (77-85)	**2.5**	**5.1**	**4.5**	**3.3**	**4.8**	**3.0**	**4.0**	**2.0**	**1.8**
Diseases of the heart (77-80)	1.7	2.3	1.0	1.4	1.7	1.1	2.2	1.0	.8
Diseases of the veins (83)	.8	2.3	2.5	1.4	1.7	1.5	1.4	.6	.8
Others (81, 82, 84, 85)	......	.6	1.0	.5	1.3	.4	.4	.4	.2
Diseases of the respiratory system (86-98)	**49.9**	**40.8**	**21.1**	**19.4**	**16.8**	9.3	**8.1**	**10.2**	**8.1**
Bronchitis (89, 90)	21.6	19.3	12.0	8.5	6.3	3.2	3.8	3.8	4.1
Pneumonia (all forms) (91, 92)	15.8	12.5	2.5	4.7	5.0	1.9	1.6	2.0	1.6
Others (86-88, 93-98)	12.5	9.1	6.5	6.1	5.5	4.2	2.6	4.4	2.4
Diseases of the digestive system (99-118)	**24.1**	**22.7**	**24.1**	**15.7**	**15.3**	**14.1**	**15.0**	**15.8**	**13.8**
Diseases of the pharynx (100)	15.0	12.5	10.0	7.1	5.5	4.0	3.4	3.6	4.1
Diseases of the stomach (102, 103)	4.2	5.1	5.5	3.8	3.1	2.9	4.5	4.4	4.9
Diarrhea and enteritis (105)	1.7	1.1	2.0	......	......	1.3	.8	2.4	.2
Appendicitis (108)	3.3	2.3	2.5	1.9	2.8	2.5	3.4	3.2	1.8
Hernia (109)	......	1.1	1.0	2.4	2.4	2.1	.8	1.2	1.2
Others (99, 101, 106, 107, 110-118)	......	.6	3.0	.5	1.5	1.3	2.0	1.0	1.6
Nonvenereal diseases of the genito-urinary system and annexa (119-133)	**2.5**	**3.4**	**.5**	**1.4**	**1.7**	**1.0**	**1.4**	**1.0**	**1.2**
Acute nephritis and Bright's disease (119, 120)	2.5	.6	......	......	......	.6	......	......	......
Others (121-133)	......	2.8	.5	1.4	1.7	.4	1.4	1.0	1.2
The puerperal state (134)	......	......	......	......	......	......	......	......	......
Diseases of the skin and cellular tissue (142-145)	**5.8**	**7.4**	**2.5**	**5.2**	**2.2**	**2.8**	**4.9**	**3.3**	**3.8**
Furuncle (143)	3.3	3.4	1.5	3.8	.7	1.3	2.6	1.0	1.2
Others (142, 144, 145)	2.5	4.0	1.0	1.4	1.5	1.5	2.2	2.2	2.6
Diseases of the bones and of the organs of locomotion (146-149)	**4.1**	**1.7**	**3.0**	**2.4**	**3.8**	**1.7**	**2.4**	**2.4**	**1.8**
Diseases of the bones and of the joints (146, 147)	.8	.6	1.5	1.0	1.8	.4	1.0	.6	.8
Others, including lumbago (148, 149)	3.3	1.1	1.5	1.4	2.0	1.3	1.4	1.8	1.0
Senility (154)	......	......	......	......	......	......	......	......	......
External causes (155-186)	**3.3**	**10.8**	**2.5**	**13.2**	**6.1**	**7.6**	**12.1**	**6.2**	**7.9**
Ill-defined diseases and conditions (187-189)	**11.6**	**7.4**	**5.6**	**5.2**	**3.3**	**4.8**	**5.7**	**3.8**	**2.8**
Number of persons included	14,208	22,249	23,527	25,832	54,044	58,036	58,385	58,969	60,264

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[1] Except the venereal diseases.

[2] Including organs of special sense (eyes, ears).

Frequency of Sickness in Different Industrial Establishments.

When the frequency rates from all diseases are compared for establishments (see Table III), extremely wide differences are shown in every month. In February, for instance, the frequency rate for Association A was 118 per 1,000, while for Association B it was 785 per 1,000. In July, the rate for Association S was 191 per 1,000, while Association R, in the same city and having about the same number of members (approximately 1,150 in either association), reported only one case occurring in July, making the rate only 10 cases per 1,000 persons per year.

It is hoped that the *why* of some of the interesting and important points raised by these preliminary statistics may be learned through the utilization of morbidity data which many industrial companies can make available.

TABLE III.—*Number of cases of sickness and nonindustrial injuries causing absence from work for one week or longer per 1,000 persons per year among the membership of each reporting sick-benefit association having more than 500 members: By month of onset, January to September, 1920.*

[Where blank spaces appear, the statistics were not available.]

Sick-benefit associations.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.
All reporting associations [a]	275	327	126	118	80	72	74	64	62
Group I [b]	282	326	120	112	78	70	71	62	60
A	170	118	60	45	26	38	36	38	31
B	548	785	252	179	150	119	124	142	130
C		272	133	102	77	61	75	53	67
D					108	101	98	72	57
E					61	53	47	62	45
F						64	37	43	49
G					59	65	62	17	17
H				204	125	130	170	112	147
N	270	620	148	70	136	70	146	131	176
O		461	83	153	43	44	21	21	89
P	527	648	200	151	203	137	39	119	61
Q	328	700	152	157	135	122	101	118	73
R			85	55	94	76	10	51	30
S				175	190	97	191	30	92
T				113	111	133	133	95	120
Group II [c]	132	338	212	208	145	115	154	92	127
Number of associations reporting	8	13	15	18	23	26	27	26	24
Total membership	14,208	22,249	23,527	30,075	58,302	62,344	62,757	63,295	64,572

[a] The rates for some of the months differ somewhat from the rates shown in Tables I and II, because Association H, which does not report diagnosis, is included in this table and excluded in the preceding tables.

[b] Associations having more than 500 members.

[c] Associations having less than 500 members.

ACKNOWLEDGMENTS.

Acknowledgments are made to the executives and medical officers and to officers of sick-benefit associations of employees in the various industrial establishments cooperating with the Public Health Service in the reporting of morbidity incidence. The data herewith presented were collected and tabulated under the immediate supervision of Assistant Statistician Dean K. Brundage, United States Public Health Service.

NOTE.—Recent publications of the United States Public Health Service relative to this study of industrial morbidity are as follows:

(1) Sickness Records for Industrial Establishments, Reprint No. 573.
(2) Keeping Tab on Sickness in the Plant, Reprint No. 589.
(3) Sickness and Absenteeism during 1919 in a Large Industrial Establishment, Reprint No. 611.
(4) Sickness Frequency Among Industrial Employees, Reprint No. 624.
(5) Diseases Prevalent Among Steel Workers in a Pennsylvania City, Reprint No. 632.

THE FATE OF THE FIRST MOLAR.

By HARRY B. BUTLER, Director of Mouth Hygiene Unit No. 1, United States Public Health Service.

No close observer of human dentition can fail to be impressed with the part in human economy played by the first, or, as it is often called, the 6-year molar. This particular tooth differs from the others in many points. Not only is this the first of the permanent teeth to make its appearance, but it is the largest of the teeth. It differs from those that have thus far appeared in that it is not replaced by any other tooth and it does not replace another. However, this tooth is to play a very important part in dentition, as it must sustain the stress of mastication during the period in which the temporary teeth are being replaced by the permanent teeth, and it also largely determines the position of the permanent teeth which follow it in normal dentition.

The first or 6-year molar has developed under somewhat different conditions from those of any that have appeared before it, and it is to be subjected to a different environment. Considering the part it should play in years to follow, its loss can be regarded as nothing short of a calamity; yet, as proved by statistics, we find it to be the tooth most frequently carious, the one most neglected, and the one most frequently lost.

A somewhat exhaustive study has been made of this first molar by the field unit of the United States Public Health Service, and many interesting facts have been revealed. In this study some 6,388 mouths were examined. These were about equally divided between the sexes, 3,232 being males and 3,156 females. In age these children ranged from 6 years, or the year of the first molar's appearance, to 17. In other words, the first 10 years of the life of this molar have been considered.

During the first year after the eruption of the first molar, caries is found to be frequently invading it. We found this condition progressing in 4.8 per cent of all the first molars in the 6-year-old children examined. This means 4.8 per cent of *all* the first molars. The percentage of children having one or more carious first molars at this age was 14.3 per cent. The difference shown between the sexes